



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/764,634

01/23/2004

Jerry Gene Williams

9083

7590

09/26/2006

Jerry Gene Williams

1 Berryfrost Lane

The Woodlands, TX 77380

EXAMINER

VALENTIN, JUAN D

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/764,634

Applicant(s)

WILLIAMS, JERRY GENE

Examiner

Juan D. Valentin II

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01/23/2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application
- ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claims 1-13 objected to because of the following informalities: The claims seem to be replete with grammar errors and multiple improper antecedent basis issues. Applicant is also asked to please present the claims such a manner where proper antecedent basis is given for every claim limitation as discussed further below. Appropriate correction is required.
2. Claims 9 and 10 appear to be identical.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-13 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has claimed “the metal or composite tube”, “the tube”, “the marine environment”, “the end coupling”, or “the optical strain gage measurement”? Applicant must provide proper antecedent basis for all of these limitations within the claim. Further, it is difficult to for examiner to understand what fully is being claimed without knowing where the proper antecedent basis lies within the claim. Applicant claims structure but does not claim a relationship for the claimed structure to cooperate together? What is an end coupling? For the purposes of examination the examiner is going to assume that the end coupling and optical fiber box are one in the same. For the purposes of examination, the examiner is going to assume that

Art Unit: 2877

the strain gauge measurement discussed in the claim is referring to any or all of the three total strain measurements disclosed within the claim. If this is not the case, the applicant should amend the claim to clearly disclose what applicant's claimed invention is.

It appears that some of the dependent claims have periods in them before the end of the claim; applicant is reminded each claim begins with a capital letter and ends with a period. Periods may not be used elsewhere in the claims except for abbreviations.

Regarding claims 2, 3, 5, 8, applicant wherein said means to measure comprises "optical time domain reflectometry, Bragg Diffraction Grating axial optical fiber in body of tube". This limitation is confusing. Is the means to measure one or the other, or both of these measurement means? For the purposes of examination, the examiner is going to assume applicant meant one OR the other. Further regarding claim 2, what is a "Bragg Diffraction Grating axial optical fiber in body of tube" and how does that measure or how it is a means to measure strain? Further regarding claim 3, what is a "Bragg Diffraction Grating circumferential optical fiber" and how does that measure or how it is a means to measure strain? Further regarding claim 5, what is a "Bragg Diffraction Grating optical fiber in metal to composite end coupling" and how does that measure or how it is a means to measure strain? Further regarding claim 8, what is a "Bragg Diffraction Grating optical fibers looped end to end" and how does that measure or how it is a means to measure strain? For the purposes of examination, the examiner is going to assume that any optical fiber diffraction grating sensor reads on the claimed Bragg Diffraction Grating limitations of these claims.

Regarding claim 7, applicant is asked to please clarify the claim in general. It is not understood what "longitudinal fiber optics circumferential spacing" means, applicant is asked to

Art Unit: 2877

please clean up the claim language to better describe what is being claimed. Examiner has no idea what applicant is referring to with said claim limitation, therefore for the purposes of examination examiner is going to assume that this limitation is referring to wrapping the tube with optical fibers and spacing them in the longitudinal direction.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 11 rejected under 35 U.S.C. 102(b) as being anticipated by Didden et al. (USPN '766 B1, hereinafter Didden).

Claim 11

Didden discloses a means for measuring axial strain and temperature in the metal or composite tube, means for measuring circumferential stains and temperature, means for measuring the strain anomalies and concentrations in the end coupling, means for generating back to back strain measurements for the purposes of calculating bending strains in the tube (col. 1, lines 10-32, col. 1, lines 45-63, col. 3, lines 1-7, col. 3, lines 29-67). Further Didden discloses a means for protecting the optical fiber from damage from operation in the marine environment (col. 3, lines 29-33).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-10 rejected under 35 U.S.C. 103(a) as being unpatentable over Didden in view of Croteau et al. (USPN '342 B2, hereinafter Croteau).

Claims 1, 7

Didden discloses a means for measuring axial strain and temperature in the metal or composite tube, means for measuring circumferential strains and temperature, means for measuring the strain anomalies and concentrations in the end coupling, means for generating back to back strain measurements for the purposes of calculating bending strains in the tube (col. 1, lines 10-32, col. 1, lines 45-63, col. 3, lines 1-7, col. 3, lines 29-67). Further Didden discloses a means for protecting the optical fiber from damage from operation in the marine environment (col. 3, lines 29-33).

While increasing the number of optical fiber loops (essentially increasing the length of the fiber sensor) is obvious and well known to someone of ordinary skill in the art. Didden fails to directly state such fact, Croteau shows that is known to provide using several loops of optical fiber from one end of a tube to the other (claim 7, Figs. 1 & 6, col. 5, lines 39-34). It would have been obvious to someone of ordinary skill in the art to combine the device of Didden with the well-known teaching of Croteau that increasing the fiber length (i.e. adding more optical loops)

Art Unit: 2877

within an optical fiber strain sensor will increase the sensitivity for the purposes of detecting or amplifying a weak pressure signal found within an oil well.

Claims 2, 3, 5, 8

Official notice taken. The use of Optical Time Domain Reflectometry (OTDR), and Bragg diffraction, are well known and obvious to someone of ordinary skill in the art at the time of the claimed invention to use for the purposes of providing measurement of an assortment of strains, pressures, temperatures, etc... within harsh environments (high temperatures/pressures), such as in oil and/or gas wells (Didden, abstract, col. 6, lines 42-50).

Claim 4

It is the position of the Office that even though the reference of Didden does not specifically disclose a polymeric protective outer layer, it does outline the importance of encasing the optical fibers and sensors in order to protect them from the harsh environments surrounding them (col. 3, lines 29-33). In light of the applicants disclosure, there is no critically distinguishing polymeric protective outer layer feature in the applicants disclosure that exemplifies novelty over prior art disclosure. Therefore producing the same results as the applicants limitation, therefore the reference of Didden reads on applicants claimed limitation.

Claim 6

Didden as applied above further discloses wherein said means for providing a junction box for optical fibers comprises a fiber optics connection box (Fig. 1, refs. 20 & 12).

Claims 9 & 10 (appear to be identical)

Didden discloses a means for measuring axial strain and temperature in the metal or composite tube, means for measuring circumferential strains and temperature, means for

Art Unit: 2877

measuring the strain anomalies and concentrations in the end coupling, means for generating back to back strain measurements for the purposes of calculating bending strains in the tube (col. 1, lines 10-32, col. 1, lines 45-63, col. 3, lines 1-7, col. 3, lines 29-67). Further Didden discloses a means for protecting the optical fiber from damage from operation in the marine environment (col. 3, lines 29-33).

While increasing the number of optical fiber loops (essentially increasing the length of the fiber sensor) is obvious and well known to someone of ordinary skill in the art. Didden fails to directly state such fact, Croteau shows that is known to provide using several loops of optical fiber from one end of a tube to the other (claim 7, Figs. 1 & 6, col. 5, lines 39-34). It would have been obvious to someone of ordinary skill in the art to combine the device of Didden with the well-known teaching of Croteau that increasing the fiber length (i.e. adding more optical loops) within an optical fiber strain sensor will increase the sensitivity for the purposes of detecting or amplifying a weak pressure signal found within an oil well.

Official notice taken. The use of Optical Time Domain Reflectometry (OTDR), and Bragg diffraction, are well known and obvious to someone of ordinary skill in the art at the time of the claimed invention to use for the purposes of providing measurement of an assortment of strains, pressures, temperatures, etc... within harsh environments (high temperatures/pressures), such as in oil and/or gas wells (Didden, abstract, col. 6, lines 42-50).

It is the position of the Office that even though the reference of Didden does not specifically disclose a polymeric protective outer layer, it does outline the importance of encasing the optical fibers and sensors in order to protect them from the harsh environments surrounding them (col. 3, lines 29-33). In light of the applicants disclosure, there is no critically

Art Unit: 2877

distinguishing polymeric protective outer layer feature in the applicants disclosure that exemplifies novelty over prior art disclosure. Therefore producing the same results as the applicants limitation, therefore the reference of Didden reads on applicants claimed limitation.

Didden as applied above further discloses wherein said means for providing a junction box for optical fibers comprises a fiber optics connection box (Fig. 1, refs. 20 & 12).

6. Claims 12 & 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Didden in view of Zimmerman et al. (USPN '035, hereinafter Zimmerman).

Claims 12 & 13

Didden substantially teaches the claimed invention except that it fails to show an OTDR (sensor) axially oriented optical fiber integrated into the body of a tube during manufacturing. Zimmerman shows that it is known to provide an OTDR (sensor) axially oriented optical fiber integrated into the body of a tube during manufacturing (col. 8, lines 5-22 & lines 28-40) for an fiber optic strain sensor. It would have been obvious to someone of ordinary skill in the art to combine the device of Didden with the embedded strain gauge of Zimmerman for the purposes of providing a strain sensor that is compatible with the material of the structure for which it is to be embedded (col. 4, lines 44-54).

While Didden in view of Zimmerman do not disclose the use of a Bragg grating, the use of a Bragg grating in combination with an OTDR strain sensor system is well known and would have been obvious to someone of ordinary skill in the art at the time of the claimed invention to use for the purposes of monitoring strains and stresses.

Conclusion

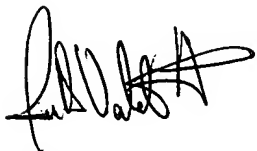
"Several facts have been relied upon from the personal knowledge of the examiner about which the examiner took Official Notice. Applicant must seasonably challenge well known statements and statements based on personal knowledge when they are made by the Board of Patent Appeals and Interferences. In re Selmi, 156 F.2d 96, 70 USPQ 197 (CCPA 1946); In re Fischer, 125 F.2d 725, 52 USPQ 473 (CCPA 1942). See also In re Boon, 439 F.2d 724, 169 USPQ 231 (CCPA 1971) (a challenge to the taking of judicial notice must contain adequate information or argument to create on its face a reasonable doubt regarding the circumstances justifying the judicial notice). If applicant does not seasonably traverse the well-known statement during examination, then the object of the well known statement is taken to be admitted prior art. In re Chevenard, 139 F.2d 71, 60 USPQ 239 (CCPA 1943). A seasonable challenge constitutes a demand for evidence made as soon as practicable during prosecution. Thus, applicant is charged with rebutting the well-known statement in the next reply after the Office action in which the well known statement was made."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan D. Valentin II whose telephone number is (571) 272-2433. The examiner can normally be reached on Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2877

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Juan D Valentin II
Examiner 2877
JDV
September 18, 2006



Michael P. Stafira
Primary Patent Examiner
Technology Center 2800